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May 24, 2021

The Honorable Jocelyn G. Boyd
Chief Clerk/Administrator
Public Service Commission of SC
101 Executive Center Dr., Suite 100
Columbia, SC 29210

Re: South Carolina Energy Freedom Act (House Bill 3659) Proceeding Related to S.C. Code Ann. Section 58-37-40 and Integrated Resource Plans for Dominion Energy South Carolina, Incorporated, Docket No. 2019-226-E

Dear Ms. Boyd:

This letter is submitted on behalf of Dominion Energy South Carolina, Inc. ("DESC") in response to the comments provided by the Office of Regulatory Staff ("ORS") and the Joint Comments provided by the South Carolina Coastal Conservation League and Southern Alliance for Clean Energy ("CCL and SACE"), Carolinas Clean Energy Business Alliance, Inc., ("CCEBA"), and Sierra Club (collectively, "Intervenors") regarding DESC's Modified 2020 IRP that was filed on February 19, 2021 in Docket No. 2019-226-E.

In addition, this letter updates the Commission on certain risks and uncertainties related to the expansion of DSM programs required to meet the 1% DSM savings target set in Order No. 2020-381.

I. ORS' Comments

a. Generating Unit Availability Factor and Forced Outage Rates

Through its consulting firm, J. Kennedy and Associates, ORS conducted a thorough review of DESC's Modified 2020 IRP and determined DESC had sufficiently addressed eighteen of the Commission's nineteen requirements for the modified IRP. As to the sole item of 'deficiency,' ORS noted that the Company provided "several years of aggregated generator performance data" which included generating unit availability factors and forced outage rates. But, ORS believed that

that this information was insufficient because the Company "did not provide 'generating unit equivalent availability factor, forced outage rate, and other data that DESC reports to the North American Electric Reliability Corporation ("NERC")'" for each unit or class of units individually. ORS Comments pp. 17, 19. DESC is happy to provide the data of the sort requested by ORS and is refiling the IRP with an Appendix O showing that data as requested. A copy of the revised version of the Modified 2020 IRP is attached. The only change to the Modified 2020 IRP is a reference to the new appendix on page 19, and the attachment of the new Appendix O.

In its report, ORS also pointed out an anomaly in the data regarding solar capacity factors. ORS acknowledged that DESC fully complied with the Commission's requirement to model "400 MW solar at three prices in line with indicative South Carolina pricing: $34/MWh, $36/MWh, and $38.94/MWh." Order No. 2020-832 pp. 49-50. These costs were based on a proposal by CCEBA's witness Mr. Sercy which in turn was based in part on calculations made using certain NREL PPA cost data. In its report, ORS pointed out a 10% difference in the capacity factors underlying NREL cost data and the solar profile used in the Company's PROSYM modeling software to reflect the energy that would be produced by these solar assets going forward. *See* ORS Comments at 21.

The 10% inconsistency is easily explainable. The NREL PPA pricing data does not reflect capacity factors for South Carolina or even the Southeastern United States generally. The area closest to South Carolina that is modeled in the NREL PPA projected cost data is the Kansas City area. The capacity factor used by the PROSYM model is based on extensive operating history for solar assets located on DESC's system.

II. Intervenors' Comments

In their comments, the Joint Intervenors ("Intervenors") misconstrue in fundamental ways the evidence of record, the position of the parties, the directives of the Commission and the contents of the Modified 2020 IRP. At this extremely late date, they seek to relitigate issues that have already been heard and decided and also seek to inject issues into this proceeding that were not raised during the hearing and are outside of the issues that were decided by the Commission in its order on the merits.

Given the number of these errors, and the complexity that would be involved in responding to each of them, DESC limits its response to those errors that, in its view, are of greatest importance substantively. The failure to address any given assertion by the Intervenors is not an admission that it is correct. The testimony of record and the Modified 2020 IRP state DESC's position on the issues in this case. They also set forth the proper and sufficient means for modeling and comparing resource plans and otherwise preparing and presenting an IRP. To the extent that the Intervenors assert additional, alternative, or contrary positions, DESC denies them based on the logic and substance of the modeling and comparative evaluations that it has presented. To the extent that Intervenors suggest modification of existing practice going forward, those suggestions are properly raised first in the stakeholder process provided by this Commission and, if necessary, in response to future IRP filings.

a. Modeling of Near-Term Additions of Solar and Storage with Coal Retirements

In Order 2020-832, at page 89, the Commission accepted the recommendation of the Intervenors' witness Mr. Sercy that DESC should be required to evaluate whether accelerating the addition of solar or solar plus storage assets could be justified by (a) assuming very low PPA costs, (b) assuming receipt of Federal ITC subsidies at a 22% level, and (c) incorporating into the modeling certain other values Mr. Sercy provided. The Commission ordered DESC to model six additional resource plans which accelerated the addition of 400 MW of solar resources to 2023, with and without 100 MW of storage, and assumed multiple very low PPA costs. The resulting plans were presented in the Modified 2020 IRP as RP7a, RP7a2, RP7a3, RP7b, RP7b2, and RP7b3.

The modeling of these plans was done precisely as the Commission instructed. Even with very favorable price assumptions, some of which are well below any PPA prices seen by DESC to date, accelerating the addition of the solar and solar plus storage ***increased*** costs to customers. It did so in 19 of the 27 sensitivities modeled. The only exceptions were eight scenarios where CO_2 costs were assumed at $35/ton beginning in January of 2021. This is not a reasonable assumption since no such CO_2 costs have in fact been imposed. In addition, the Energy Information Administration ("EIA"), which was the source of that value, indicated that the $35/ton sensitivity it modeled was not a forecast but a sensitivity chosen without reference to any evaluation of its probability of occurring.

These results of the modeling are entirely consistent with the testimony presented at the hearing and the information presented in DESC's Modified 2020 IRP. That information shows that:

1. Aside from like kind exchanges for reliability and operational reasons, additional generation assets are not needed in the near term to provide reliable service to customers.

2. Delaying the addition of solar and solar plus storage reduces costs to customers since the cost of those technologies is falling.

3. Absent high CO_2 costs, the cost per kWh for energy from solar and solar plus storage assets currently exceeds the system's incremental energy cost. There is no energy benefit from adding these facilities early. This is true even under the extremely low PPA cost assumptions that the Commission ordered DESC to model.

4. And given recent changes in tax law, accelerating the acquisition of solar or solar plus storage assets is not needed to protect a 22% Federal ITC subsidy.

The Intervenors now suggest that the Commission should order DESC to model adding near-term solar or solar with storage under Resource Plan 8. Intervenors' Comments pp. 13-16, 51. From a procedural standpoint, the proposal is untimely. It was not required under Order No. 2020-382. Additionally, it is without evidentiary support as there is no testimony in the record justifying it.

Furthermore, there is no basis to believe that the proposed modeling would result in meaningful new data or a different conclusion as to a preferred resource plan. The analysis done in the Modified 2020 IRP shows that adding solar or solar plus storage in 2023 is more expensive for customers than waiting to add it in 2026. This will be true whether RP7 or RP8 is used as the base plan for assessing these costs. Both resource plans envision adding solar capacity beginning in 2026. Under either plan, accelerating the addition of solar or solar plus storage would simply accelerate by several years the addition of renewable capacity already envisioned under that plan. There is no difference between RP7 and RP8 that would change the conclusion that prematurely adding solar or solar plus storage is not cost effective. The Commission should deny the Intervenors' request.

b. Application of Minimax Regrets

The Intervenors also assert, without justification, that DESC failed to comply with the Commission's order by misapplying the minimax regrets and cost range analyses proposed by Mr. Sercy. Intervenors' Comments p. 17. This is simply incorrect.

Contrary to the Intervenors' assertion, DESC modeled and presented the minimax regrets and cost range analyses exactly as Mr. Sercy suggested. Modified 2020 IRP at 71-72. The modeling showed quite clearly that the preferred plan, RP8, had the best scores under both measures.

The actual basis of Intervenors' objection is that, after presenting the minimax regrets and cost range analyses as required by Order No. 2020-832, DESC went on to point out how the approach as proposed by the Intervenors can lead to seriously inaccurate conclusions. DESC provided alternative calculations as a check on this potential inaccuracy.

As DESC explained in the Modified 2020 IRP, the Intervenors' approach gives highly improbable scenarios weight equal to scenarios that are in fact much more likely. The averaging of results under the Intervenors' approach masks this fact. By including multiple unlikely scenarios in the analysis, supposedly "objective" outcomes can be distorted by overweighting the analysis with results based on those unlikely scenarios.

For that reason, DESC presented rankings of all fourteen resource plans in two ways. First, it presented results ***averaged under all scenarios*** according to the Intervenors' approach. Following the Intervenors' approach, DESC presented the average rankings of each plan under eight specific factors: (1) minimax regret, (2) cost range analysis, (3) levelized cost, (4) CO_2 emissions, (5) clean energy produced, (6) fuel costs, (7) generation diversity, and (8) reliability. Modified 2020 IRP at 74. DESC also ranked the fourteen plans against the same eight factors under ***the most reasonably expected sensitivity values*** which included High DSM (1%), $12/ton carbon cost, and low gas prices. Modified 2020 IRP at 75-77.

Fortunately, under either analysis, RP8 was shown to be the most beneficial plan for customers by a wide margin. In addition, RP8 was found to be the most beneficial plan both when rated across all eight factors and under the individual minimax regrets analysis and the cost range analysis.

While the additional analyses presented by DESC did not change the ranking of the resource plans, presenting them was necessary to ascertain that the potential methodological flaws contained in Intervenors' approach did not distort the results. The flaws and risk of inaccuracy in Intervenor's approach are real. They should be guarded against in future IRPs.

DESC respectfully submits that in its Modified 2020 IRP it has provided everything that is required under Order No. 2020-832 related to minimax regret analysis and cost range analysis. No further action by the Commission regarding these matters is required.

c. The Eight Factor Analysis

The eight-factor analysis mentioned above was presented for the first time in the Modified 2020 IRP. DESC believes that it represents a valuable tool for comparing the attributes of resource plans and to show full compliance with Order No. 2020-832 and the terms of Act No. 62. The ongoing stakeholder process surrounding future IRPs and IRP updates is the proper forum for considering any issues related to the improvement and modification of the analysis. This would include issues related to Factor Six, the reliability weighting, which the Intervenors raised in their Comments at pages 25-29. Those issues are properly considered in future stakeholder and IRP processes.

d. DSM/EE Sensitivities

The Intervenors assert that in its Modified 2020 IRP, the Commission ordered DESC to model demand side management and energy efficiency programs ("DSM/EE") as a resource instead of a scenario. Intervenors' Comments p. 51. This is not true. Order No. 2020-832 explicitly states that "DESC should include DSM as a resource option ***in the 2021 IRP Update — if achievable - or 2022 IRP Update and future IRPs***." Order No. 2020-832, at 43-44. The order does not envision DESC modeling DSM as a resource in the Modified 2020 IRP.

In addition, DESC's current modeling software adds generation resources as discrete blocks, with a single cost per block. Modeling DSM as a resource will require a new resource optimization software that can assign different costs to a single resource depending on how much of that resource is used. As Order No. 2020-832 indicated: "[t]he selection of a capacity expansion model, discussed elsewhere in this Order, should include consideration of the model's capability to select DSM as a resource." Order No. 2020-832, at 43-44. Such software will be available for use in a future proceeding, but is not the basis for the Modified 2020 IRP before the Commission here.

e. Combustion Turbine ("CT") Plan

Contrary to the Intervenors' allegations, the plan for replacing certain of DESC's aging combustion turbine ("CT") units was not in place when DESC's 2020 IRP was prepared. The primary modeling for the 2020 IRP began in December of 2019, and was completed before the plan was filed in February of 2020. The CT plan was finalized and filed with the Commission in March of 2021 over a year later. *See* Dominion Energy South Carolina, Incorporated's Request for "Like Facility" Determinations Pursuant to S.C. Code Ann. § 58-33-110(1) and Waiver of Certain Requirements of Commission Order No. 2007-626, Docket No. 2021-93-E.

Nor was the possibility of a replacement of aging CT assets in any way concealed from the parties or the Commission during the pendency of this proceeding. In his rebuttal testimony, which was prefiled in this docket in August of 2020, the Company's witness Mr. Bell stated:

> DESC does not consider its gas-fired combustion turbine units as candidates for early retirement generally but ***may* replace certain aging ICT units with more modern, fuel-efficient units** that have the fast-start capability required to support intermittent solar generation. This would not be a change to generation supply but an exchange and modernization of like-kind existing assets.

Tr. at 65.22 (emphasis supplied).

On October 12, 2020, in the oral summary of his testimony given from the stand, Mr. Bell highlighted and expanded on this point:

> ***The company plans to replace certain aging combustion turbines with more modern fuel-efficient units***. These units have the fast-start capability required to support intermittent solar generation. These would be replacement decisions of like-in-kind generation; no retirement study is involved in that decision.

Tr. at 61-62 (emphasis supplied).

Finally, in the Modified 2020 IRP, filed on February 21, 2021, the Company accurately reported that:

> ***The Company is completing its evaluation of the replacement of certain older units with modern aero-derivative replacements.*** These modern units have reliability and efficiency advantages that become even more important as additional intermittent resources are added. The new units would be uniquely capable of responding to unanticipated fluctuation in generation resources on the system caused by the interaction of solar generation with changing weather conditions. Once decisions concerning the number, technology and location of the replacement units have been made, the Company anticipates filing an application with the Commission for a ruling affirming that these replacements can proceed under the provisions of the South Carolina Facility Siting and Environmental Compliance Act that apply to the replacement of existing resources. Procurement and construction of the units would follow the issuance of such a ruling.

Modified 2020 IRP p. 84 (emphasis supplied).

To claim, as the Intervenors do, that the Company did not disclose the possibility that it might replace certain aging simple cycle combustion turbine units with more modern and efficient units is simply wrong. DESC did so repeatedly as its replacement plan has taken shape and well before it was finalized.

Furthermore, the replacement of individual natural gas-fired combustion turbines because they are becoming less reliable and more expensive to maintain is not the sort of decision that is properly modeled in an IRP. This is not a long-term resource planning decision, and it certainly is not the sort of change that would materially affect the reserve margin analysis or need for additional generation which is the focus of an IRP. If undertaken, the replacements will become part of the baseline of the generation system as a whole and their capacity will apply across all resources plans equally. A similar level of CT capacity will be included in modeling all resource plans under consideration.

Combustion turbines are critical to maintaining the reliability and resiliency of DESC's system because they start quickly with minimal preparation and can be used to balance intermittent renewable resources. They also provide blackstart capability, which is the ability for a unit to start up on its own and feed power into the system when the system or the relevant part of it is fully de-energized. Blackstart capability is important to grid operations in emergency situations and its availability is a nuclear safety requirement for the VC Summer Unit.

In Docket No. 2021-93-E, DESC properly requested a ruling that the replacement of these units is a like-kind replacement of assets under S.C. Code Ann. § 58-33-110(1). As Act 62 also makes clear, an IRP is not a substitute for consideration of new generation assets under the provisions of the Environmental Compliance and Siting Act, nor under the terms of the siting act statute, is it a prerequisite to it. Any issues related to this CT replacement plan are properly raised in Docket No. 2021-93-E.

f. Potential Coal Docket

The Intervenors ask the Commission to immediately open the coal retirement docket which is envisioned to consider and approve coal unit retirement plans. Intervenors' Comments p. 32. This request is premature. Transmission Impact Analyses ("TIAs") must be conducted to determine how plant retirements will affect system requirements and grid reliability. The transmission planning department must complete these analyses under the provisions of the Federal Energy Policy Act of 2005 and related FERC regulations and NERC approved reliability and planning standards. Until the transmission department has completed its work, it will not be clear what reliability deficiencies will be found or what the potential scope of resources or assets required to fill those deficiencies will be. As a result, grid needs and services, requirements, and capacity will not be known until the analyses are completed.

In the meantime, DESC is consulting with its IRP Stakeholder Advisory Group regarding its request for the TIA related to the potential retirements. Due to timing requirements and the length of time needed to complete studies, DESC has recently modified its initial TIA request to include an analysis of the potential retirement of the Williams Station in addition to the analysis of the potential retirement of Wateree Station. The accelerated timing of the Williams request and any additional concerns related to the retirement studies generally will be a lead topic in the upcoming DESC IRP Stakeholder Advisory Group meeting. The Company will take into account feedback from that group going forward. But until the TIA for the two units is complete, there is nothing substantive to consider in a Commission docket.

A copy of the most recent TIA request, sent on May 13, 2021, is attached as Exhibit A. This latest request supersedes the initial request sent on April 6, 2021 which concerned Wateree Station only.

g. Rapid Assessment

Finally, the Intervenors raise concerns with DESC's rapid assessment results. Intervenors' Comments p. 40. Specifically, the Intervenors argue that the rapid assessment "is not actually designed to reach a 1% level of savings" and that the Commission should order DESC to calculate its savings "as a percentage of total retail sales." Intervenors' Comments at 41.

In effect, the Intervenors are challenging the fact that the Commission has allowed liberal DSM opt-out provisions for industrial and commercial customers. A high proportion of industrial customers and a significant proportion of commercial customers have in fact opted out of DSM programs. When calculating DSM savings, the Company calculates the savings that can be accomplished based on its actual DSM customer base net of those which have opted out.

Computing DSM savings for a customer base that includes customers who have opted out of participation in the programs is illogical. In addition, as discussed below, there are substantial concerns about the achievability of the 1% target as currently computed. Including opt out customers in the target makes achieving it more uncertain.

Furthermore, the logic of the Commission's adoption of opt-out provisions was that customers who opt out certify that they are implementing DSM measures at their own expense that are at least as effective as those provided by the Company. This is not unreasonable. Opt-out customers include sophisticated industrial and large commercial customers many of whom have very aggressive corporate energy efficiency programs and highly skilled energy managers within their organizations. Counting these customers in calculating DSM targets makes sense only if it is assumed that they are not achieving DSM savings based on their own programs. This is not the case.

III. The DSM Rapid Assessment and Issues Related to Cost Effectiveness

In prior potential studies, and with very limited exceptions, programs and measures that were not in themselves cost effective were not adopted. But in conducting the Rapid Assessment required under Order No. 2020-382, ICF (DESC's DSM consultant) found that it would be difficult to fashion a diverse portfolio to meet the Commission's 1% savings mandate without relaxing that approach.

Specifically, in the early stages of preparing the Rapid Assessment, ICF concluded that it could be possible to meet a 1% target based only on the rapid expansion of DESC's largest behavioral program, the Home Energy Reports program. It is recognized in the DSM industry that the savings that can be generated and sustained under residential behavioral programs are difficult to predict. Uncertainty around the results they will achieve is common. For that reason, under its existing DSM program plans, DESC had envisioned ramping up the Home Energy Reports program in stages as it gained information and feedback concerning customer responses and verified savings levels.

This approach was set aside in seeking to achieve the Commission's 1% DSM target mandated by Order 2020-832. To achieve the 1% target, ICF originally proposed to automatically enroll 70% or more of eligible customers in the expanded Home Energy Reports program, subject to opt-out. But given the risks and uncertainties surrounding customer response to behavioral programs, DESC and ICF determined that it would be preferable not to rely on a single behavioral program for achieving 100% of the target. Therefore, ICF designed a plan to expand a diverse set of programs in addition to Home Energy Reports. Under the plan as finally structured, DESC will enroll approximately 55% of its residential electric customers in the Home Energy Reports program and expand other DSM programs (including the low income program) to supply the balance of savings.

But two of the programs that are to be expanded under this plan have declining cost benefit curves. Both have been run cost effectively in prior years. But because of diminishing returns, they are not expected to be cost-justified on a standalone basis in all periods covered by the Rapid Assessment plan.

As a result, the plan to achieve the 1% savings target results in a suite of DSM programs that are forecasted to be cost effective in the aggregate but includes measures and programs that are not cost-effective on a standalone basis in all periods. In effect, cost effective programs or measures will be allowed to cross-subsidize programs and measures that are not cost effective in their own right in future years. While this approach is by no means ideal, it has been deemed to produce a more reliable forecast and the better approach to meeting the Commission's 1% DSM savings mandate than relying for 100% of the savings target on the expansion of the Home Energy Reports program.

At its Energy Efficiency Advisory Group meeting on April 27, 2021, DESC explained these issues to the stakeholders. Certain of them expressed concerns about the uncertainty of relying on even the limited expansion of Home Energy Reports in achieving the projected 1% level of savings. DESC shares these concerns. However, without a comprehensive program evaluation, such as a full potential study, DESC has not identified a better alternative for reaching the Commission's 1% savings goal. The comprehensive evaluation mandated by the Commission in Order 2020-832 gets underway this year. Members of the Energy Efficiency Advisory Group have already provided initial input into that evaluation which will be completed for inclusion in the 2023 IRP.

DESC will monitor customer acceptance of the modified programs carefully as well as early indications as to cost effectiveness and the results that will be achieved. Furthermore, DESC will keep the Commission and stakeholders apprised of what it learns. However, the results that can be achieved under this approach remain uncertain. Cost-justification of the suite of programs as a whole will not be known until later in the implementation process. But, unless informed otherwise, DESC will assume that the Commission wishes for it to aggressively pursue a 1% savings goal as set forth in the Rapid Assessment, while working to improve cost effectiveness in spite of these uncertainties and potential of increased costs to customers.

IV. Conclusion

The Modified 2020 IRP fully satisfies the Commission's directives in Order No. 2020-832 and also conforms with the requirements of S.C. Code Ann. § 58-37-40 using methodologies that are well-recognized in the industry. Ultimately, the resource plans modeled in the Modified 2020 IRP define a broad range of possibilities for meeting the future needs of DESC's electric customers reliably, efficiently, and economically, and include the most relevant technologies available for that purpose. Under all assessment approaches and metrics, Resource Plan 8 is the preferred plan. In addition, DESC has included the additional generation reliability data requested by ORS in the revised plan which is being filed at this time.

The plan for achieving the Commission's short-term 1% DSM target savings, as set forth in Appendix D to the Modified 2020 IRP, is reasonable but has significant risks as to its ability to achieve the stated goal and to maintain cost effectiveness. However, in the absence of a comprehensive evaluation, DESC is not aware of a more reasonable or prudent way to meet the Commission's stated DSM goals.

Accordingly, DESC asks this Commission to accept the Modified IRP with a proposed update to include the additional data requested by ORS.

Thank you for the opportunity to comment on this matter.

Respectfully submitted,

Womble Bond Dickinson (US) LLP

/s/Belton T. Zeigler

Belton T. Zeigler

cc: All parties of record